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Exercise Evolved: Exciting New Updates in *ACSM's Guidelines for Exercise Testing and Prescription*, 12th Edition

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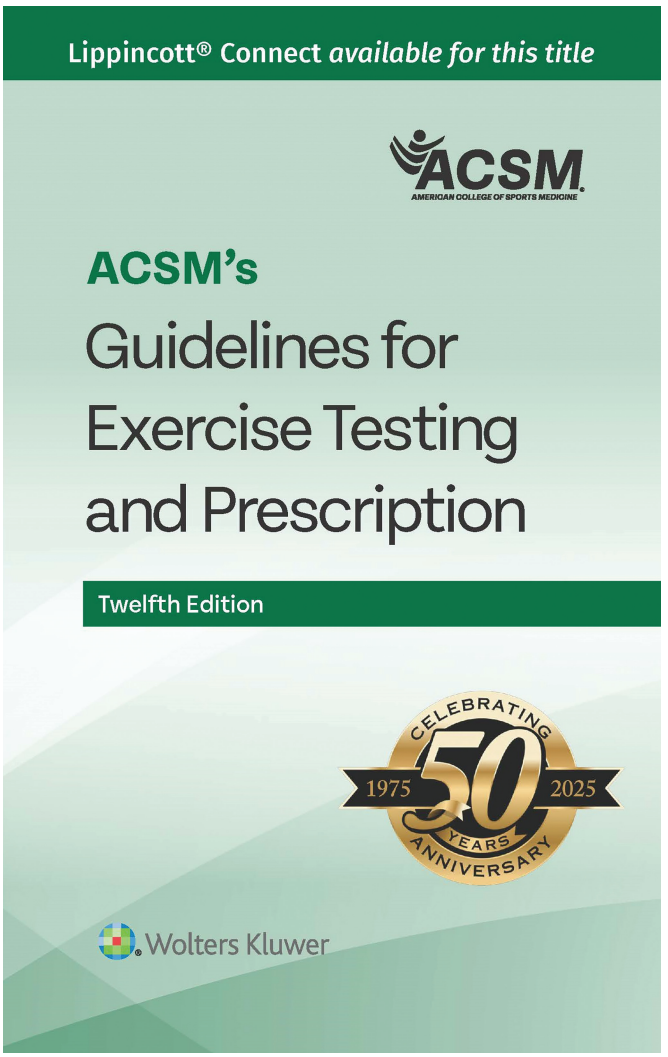
INTRODUCTION

The American College of Sports Medicine (ACSM) has long been a leader in advancing and promoting the science of exercise and sports medicine. One of its most influential contributions is the publication of *ACSM's Guidelines for Exercise Testing and Prescription*, which has shaped the field of exercise science and health fitness for five decades.



First published in 1975, *ACSM's Guidelines for Exercise Testing and Prescription* was developed to provide evidence-based guidance on graded exercise testing and exercise prescription for both apparently healthy and unhealthy populations (1). The involvement of physicians, physiologists, and physical educators from 32 labs located in 19 different states and three Canadian provinces ensured that the initial edition of the Guidelines reflected the many different views of those in the field (2). The authors of this first edition were visionary leaders in that they stated "The current *Guidelines for Exercise Testing and Exercise Prescription*, which are assumed to be equally valid for both sexes and the entire age range, reflect an initial attempt to synthesize available knowledge into a workable format. Periodic revisions will be necessary as our knowledge and understanding of this complex area evolve" (2).

ACSM's Guidelines have played a crucial role in standardizing exercise prescriptions across a variety of populations, from healthy individuals to those managing chronic diseases, underscoring the importance of tailored, safe, and effective exercise. Each subsequent edition has expanded its scope, incorporating updates based on the latest research to ensure that professionals working in clinical, research, and fitness settings can provide optimal care and training. The Guidelines are not only central to ACSM's certification process but also widely adopted as a global standard in the health and fitness industry.

As of March 2025, the 12th edition of *ACSM's Guidelines for Exercise Testing and Prescription* is available. Cemal Ozemek, Ph.D., FACSM, FCEPA, ACSM-CEP (see Sidebar 1), senior editor for the 12th edition of the Guidelines (GETP12e), was interviewed to share updates and important information surrounding the 12th edition in the sections below.

DESCRIBE YOUR ROLE IN THE DEVELOPMENT OF THE 12TH EDITION OF ACSM'S GUIDELINES

"My first role was to identify three stellar associate editors, and there is no doubt that I accomplished that (see Sidebar 2). The next big step was to review the 11th edition to get a good sense of which areas needed updating, sections that needed to be added based on the latest body of literature, as well as which sections required reorganizing and/or trimming. We then invited subject matter experts (SMEs) to serve as contributors, giving them guidance on areas that we thought required their attention, but ultimately gave them the autonomy to make revisions

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Sidebar 1. Meet Cemal Ozemek

Cemal Ozemek, Ph.D., FACSM, FCEPA, ACSM-CEP, FAACVPR, is a clinical associate professor and director of the Professional Doctor of Clinical Exercise Physiology Program and Medical Exercise Therapy Clinic at the University of Illinois at Chicago. He has extensive experience working in clinical settings that provide supervised exercise training for outpatient cardiovascular, pulmonary, bariatric, and long COVID patients. His current research efforts work toward Nicole Mendola developing, implementing, and testing the efficacy of exercise intervention services in healthcare settings. Dr. Ozemek is a past president of the Clinical Exercise Physiology Association, coeditor of *ACSM's Clinical Exercise Physiology*, 2nd edition textbook and senior editor for *ACSM's Guidelines for Exercise Testing and Prescription*, 12th edition.

that best reflect the latest evidence in their area of study. After receiving and reviewing the updated sections/chapters, we identified additional experts to review the respective sections and get their feedback, relay that information over to the contributor, and then once again review those revisions."

WHAT WERE YOU HOPING TO ACCOMPLISH AS SENIOR EDITOR OF GETP12E?

I wanted "to ensure that the underlying integrity of the Guidelines, which is based off evidence-based research, was maintained. Secondly, when we were starting, ACSM set up focus groups made up of students, instructors, and practicing professionals to give their feedback on what they appreciated about the Guidelines in addition to recommendations on what they thought could be improved upon. That invaluable feedback gave us the opportunity to make improvements in areas that we may not have previously considered. Lastly, making sure that the content could be effectively applied in practical settings, thus fulfilling the purpose of the Guidelines. To accomplish this, we had to shorten background information and expand content on application."

WHAT WERE SOME OF THE MAJOR CHANGES OR UPDATES IN THIS EDITION COMPARED TO PREVIOUS VERSIONS?

"Perhaps the biggest revision or expansion was on the resistance training section, which was masterfully done by the contributors. Readers will likely notice that there is a greater focus on performance, which was not emphasized in the previous edition. This is something the editors requested based upon feedback from the focus group. Although, we may instinctively associate performance training for young and healthy individuals, many of the training approaches can be appropriately tailored to older adults and those with chronic health conditions. Since the last edition, the evidence supporting resistance training across populations has grown exponentially along with its adoption in supervised clinical exercise programs. Accordingly, individuals who are entering the exercise profession, whether it is personal training or clinical exercise physiology, there must be that deep-rooted understanding of how to appropriately apply resistance training for optimal benefit. I strongly believe this section is going to accomplish that."Another section that was significantly updated was the behavioral theories and strategies for promoting exercise section. The SMEs did a "wonderful job revising this section so that there is less theory and more application of how to promote behavior change." For additional information, see Sidebar 3.

WHAT WERE THE MOST CHALLENGING ASPECTS OF REVISING GETP12E?

"It was very difficult at times to refrain from going deeper into certain topics and deciding whether it was the right time to add a section on a particular population. A great example would be long COVID. There just wasn't enough scientific evidence to outline a prescriptive model that addressed the complications associated with long COVID. Instead, what we ended up doing was creating a section for conditions associated with a long COVID diagnosis (*i.e.*, chronic fatigue syndrome and postural orthostatic tachycardia syndrome (POTS)) that had a strong body of evidence outlining the role of exercise interventions in managing the respective conditions."

Sidebar 2. Associate Editors of *ACSM's Guidelines for Exercise Testing and Prescription*, 12e

Amanda R. Bonikowske, Ph.D., ACSM-CEP, FAACVPR
Associate Professor, Director – Cardiac Rehabilitation
Mayo Clinic

Jeffrey W. Christle, Ph.D., ACSM-CEP, FACSM
Senior Scientist, Director of Clinical Exercise Physiology
Stanford University/Stanford Health Care

Paul M. Gallo, Ed.D., ACSM-CEP, ACSM-EP, ACSM-GEI, FACSM
Director of Exercise Science and Wellness
CT State Norwalk

Sidebar 3. Comparing GETP11 to GETP12

A crosswalk, a comprehensive spreadsheet comparing GETP11 to GETP12, including page numbers, topics, figures/tables will be available on http://www.acsm.org/ for faculty and those preparing for exams.

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HOW DID YOU ENSURE THAT GETP12E REMAINED CURRENT WITH THE LATEST RESEARCH AND TRENDS IN EXERCISE SCIENCE?

"Before we reached out to contributors, the associate editors and I reviewed pronouncement papers that recently were published at that time by ACSM, looked at other scientific statements and guidelines in the respective sections that were not available during the publication of the 11th edition, and those were the documents that led our contributors in infusing some of those updates and changes. For the other areas, we relied on SMEs who conduct high-quality research on the topical area and had them make changes within the respective sections."

WHAT NEW SECTIONS OR TOPICS WERE ADDED TO GETP12E, AND WHAT PROMPTED THEIR INCLUSION?

"Sections that made it into GETP12e with little consideration were those that had an ACSM position stand or pronouncement paper since the last edition. Those being sex differences, transgender, and gender-diverse individuals, and metabolic dysfunction-associated steatotic liver disease.

The other sections that we added were based upon our own professional experiences with the growing patient populations that we were seeing in our respective clinics, our review of the literature, and our interactions with many professionals that were less familiar with working with some of these patients, which in turn limited their ability to deliver effective exercise interventions. That included spontaneous coronary artery dissection (SCAD), POTS, pediatric cardiac rehabilitation, and inspiratory muscle training."

WHAT ARE YOUR THOUGHTS ON FUTURE DIRECTIONS FOR THE ACSM GUIDELINES? ARE THERE AREAS YOU BELIEVE WILL NEED MORE FOCUS IN THE NEXT EDITION?

"In our conversations with experts, we quickly realized the need to be more uniform with terminologies that we use with describing the intensity of exercise. There is a lot of variability across the literature and among professional guidelines/statements on how it is defined. As practitioners, we tend to overlook many of the nuances because we have a general understanding of what they mean. However, these nuances can cause confusion, therefore we need to make sure that there are uniform definitions and applications for prescribing intensity, and potentially identifying a hierarchy of the various methods.

Another suggestion worth considering is expanding the section on children. They pointed out that there is such a wealth of information on the topic that it is difficult to put it all into one smaller section. Therefore, having a dedicated chapter to exercise testing and prescription in children would be important, particularly as we see the trends of childhood obesity and diabetes going up. The role of exercise in children is more important now than ever before, and how to do that effectively could be addressed with the 13th edition of the Guidelines.

Lastly, we are seeing more studies highlighting the importance of recovery as well as sleep in facilitating fitness improvements. Including sections on these topics would be warranted in the next edition."

WHAT DO YOU HOPE EXERCISE PROFESSIONALS, CLINICIANS, PRACTITIONERS, ETC., WILL TAKE AWAY FROM GETP12E?

"First and foremost, I really hope that they can take a moment to appreciate the advancements that have been made in our field since the last edition. I think many of us tend to overlook that from one edition to the next and lose sight of the impactful scientific contributions investigators and practitioners make in expanding our knowledge base. Paying attention to those details and applying them in practice ultimately benefits the individuals we serve.

Secondly, I hope that they can appreciate the extent to which the Guidelines can be used and its limits. This was something that I think was evident when we were reviewing the focus group's comments. There wasn't a complete understanding of how these Guidelines are utilized and most importantly, the limits of these Guidelines. It is not a textbook that does a deep dive into exercise physiology across topics. It is a resource that one refers to in practice. So, in this edition I would encourage everyone to read the foreword, which is essentially a 'how to use the guidelines' statement and it is broken down into sections for students, instructors, and practitioners, with recommendations on next steps if they wanted to increase their knowledge on a topic.

Lastly, I'm confident that these Guidelines will help the reader customize exercise prescriptions relative to an individual's profile for optimal benefit, rather than use cookie cutter strategies to apply in a one-size-fits-all manner."

CONCLUSION

As with every new edition of Guidelines, there continues to be inclusion and updates relating to the latest research and professional experience to ensure that professionals working in clinical, research, and fitness settings can provide optimal care and guidance to the patients and clients they serve. For more information and to purchase your copy of *ACSM's Guidelines for Exercise Testing and Prescription*, 12th edition, please visit www.acsm.org/education-resources/books (3).

Sidebar 4. Senior Editor Perspective: Impact of the GETP12e on Clinical Practice and Exercise Prescription

"Guidelines truly serve as the initial reference that practitioners can go to, to get a foundational understanding of that condition, how you would test those individuals, prescribe exercise, and progress them."

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1. Liguori G. *ACSM's Guidelines for Exercise Testing and Prescription*. 11th ed. Philadelphia (PA): Wolters Kluwer; 2022.
2. *Guidelines for Graded Exercise Testing and Exercise Prescription*. 1st ed. Philadelphia (PA): Lea & Febiger; 1975.
3. *American College of Sports Medicine Web site [Internet]*. Indianapolis (IN): ACSM Books; 2024. [cited 2024 October 4]. Available from: https://www.acsm.org/education-resources/books.

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